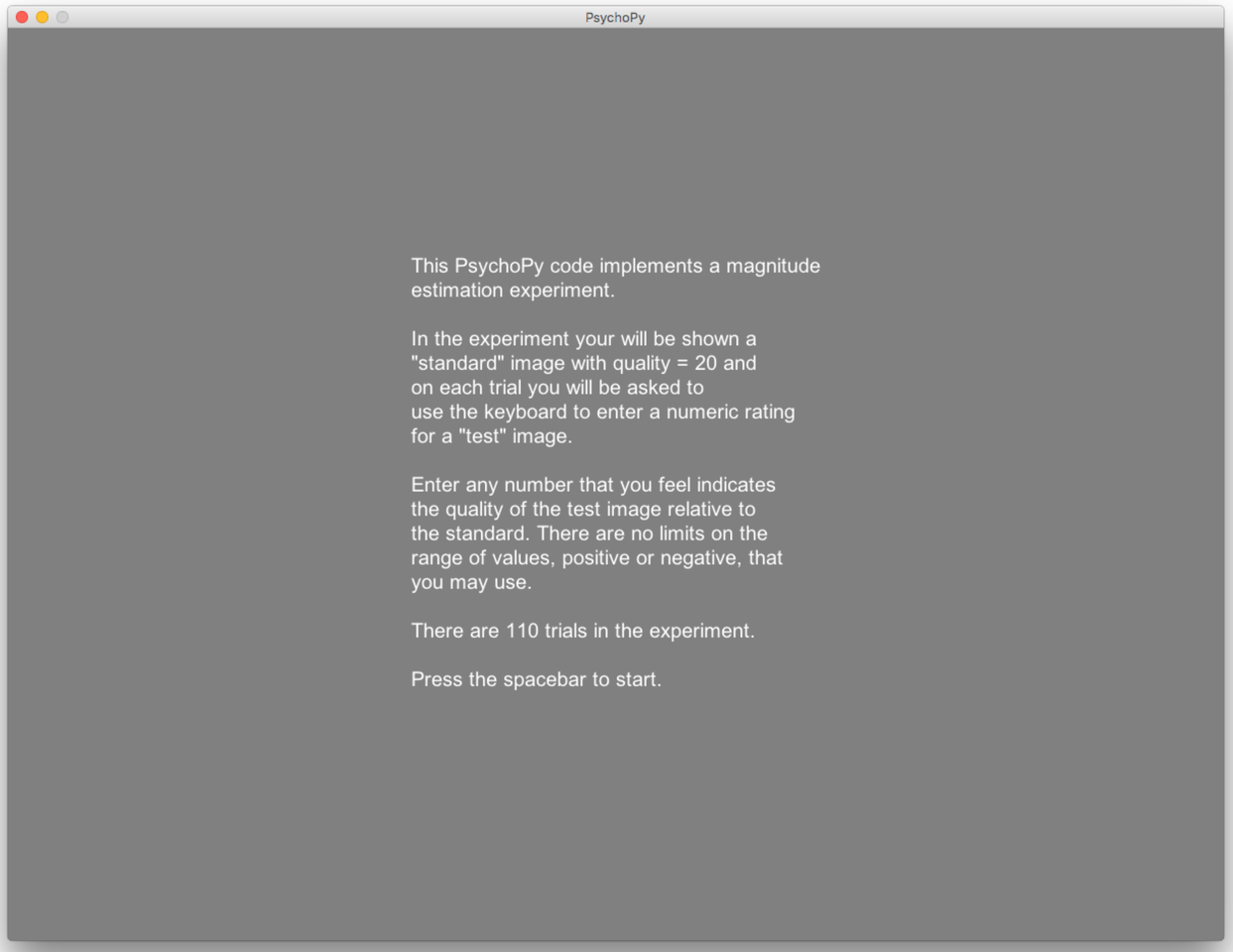
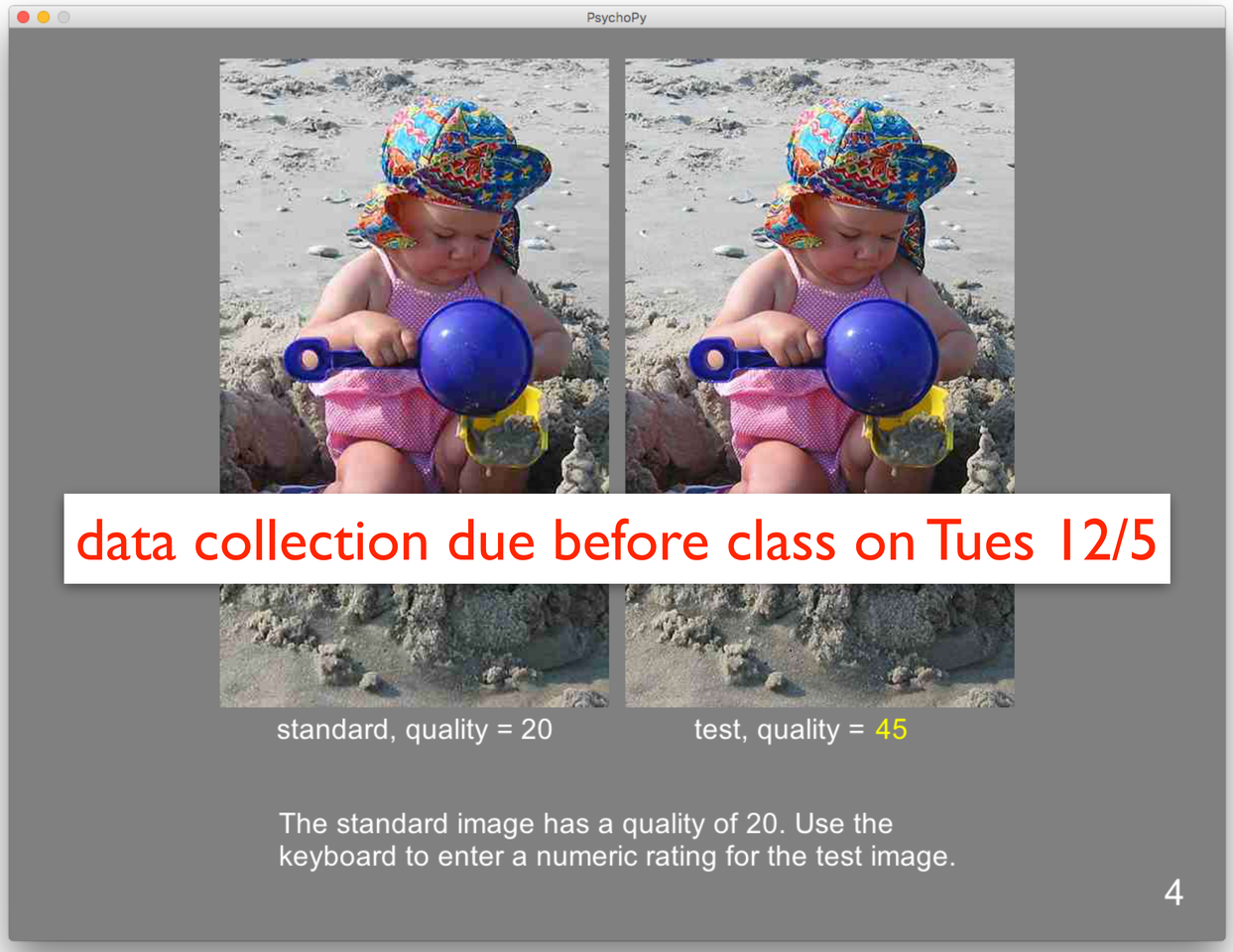
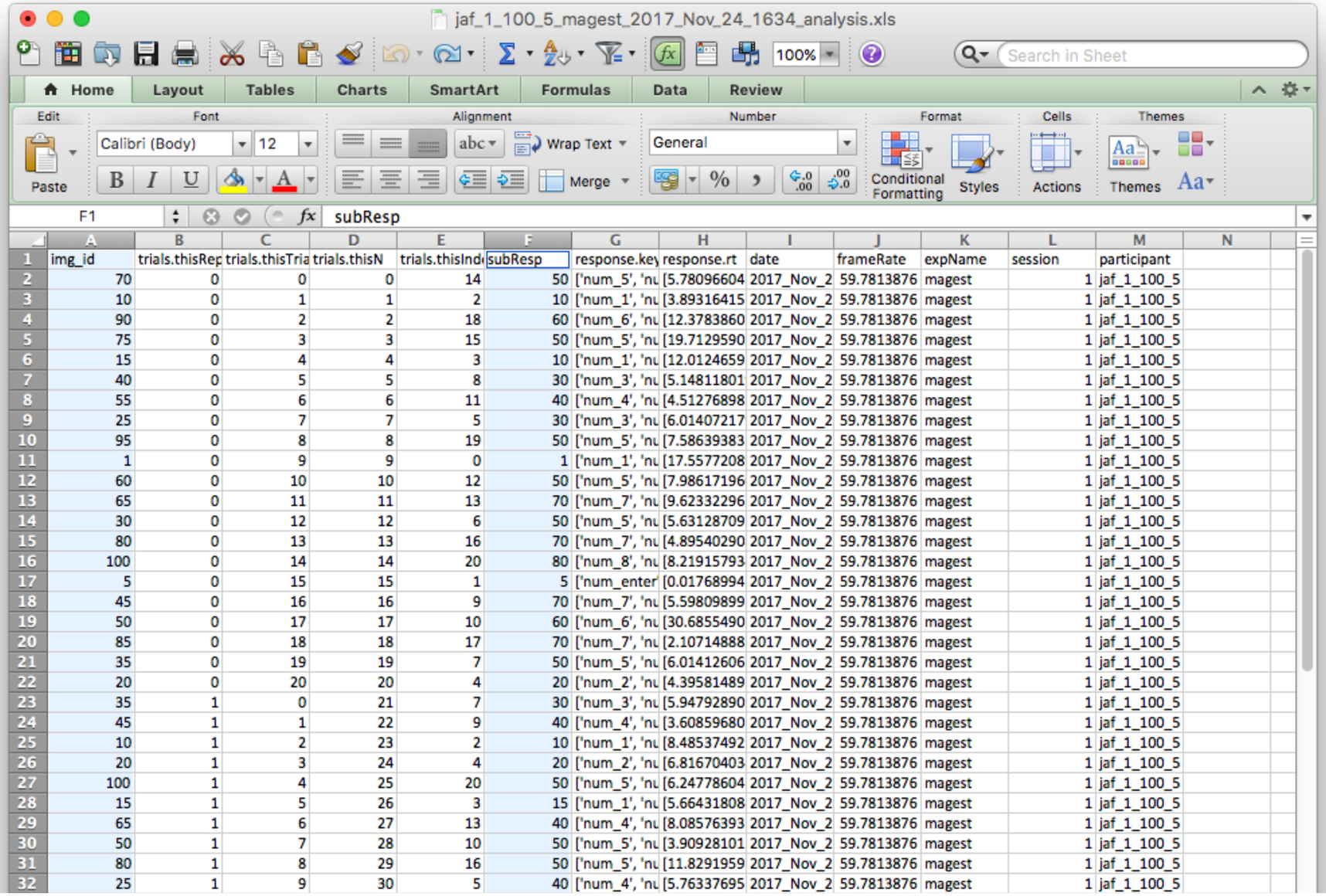
Lab 6 assignment: magnitude estimation experiment





1. Download the **magest.zip** file that contains the code and resources for the magnitude estimation experiment from myCourses. Unzip the file to extract the code and resources.
2. Use PsychoPy to run yourself through the experiment.
    2.1. Make sure to use a unique participant id so you can find results .csv file.

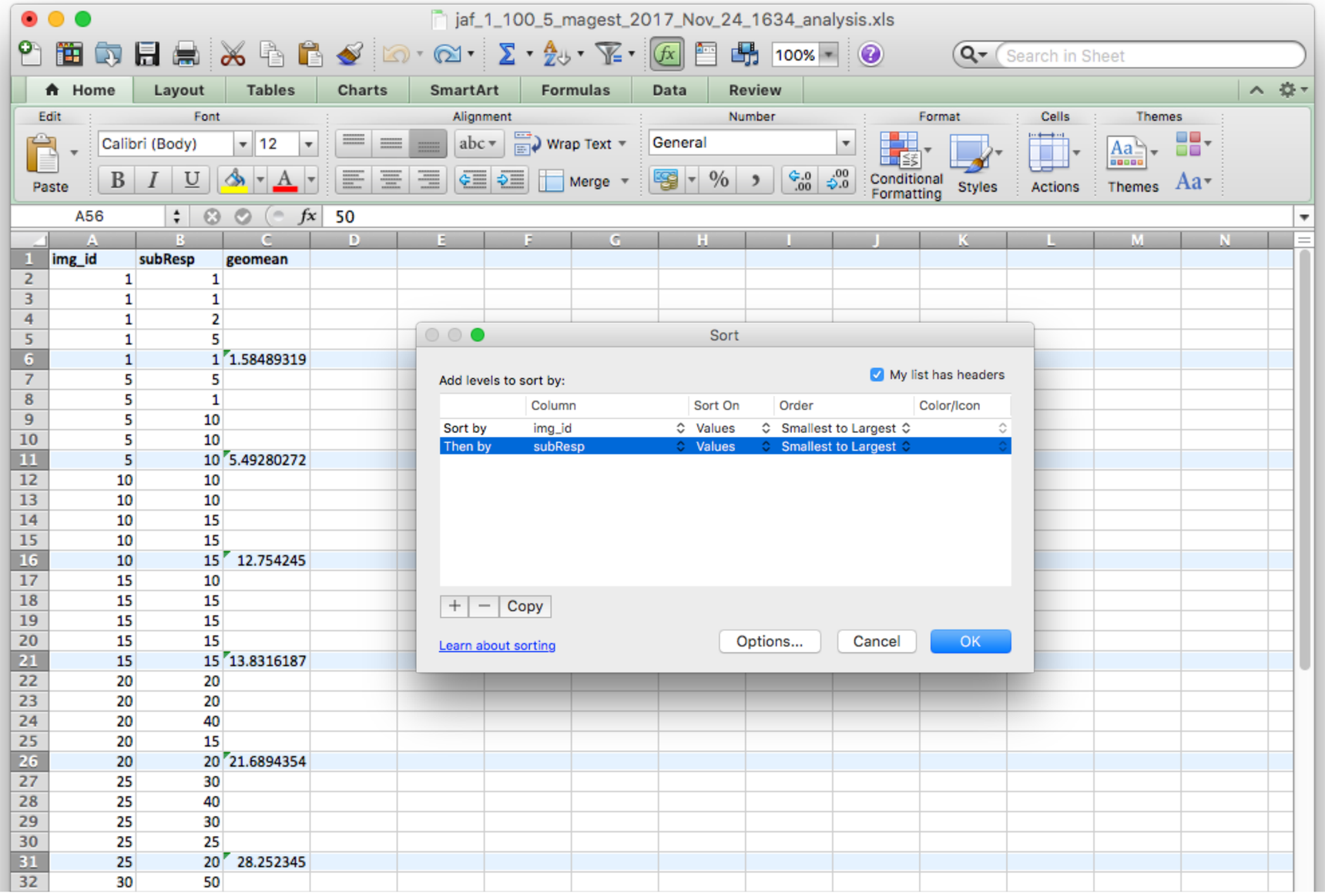
Lab 6 assignment: magnitude estimation analysis



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	img_id	trials.thisRep	trials.thisTria	trials.thisN	trials.thisInd	subResp	response.key	response.rt	date	frameRate	expName	session	participant	
2	70	0	0	0	14	50	['num_5', 'nu	[5.78096604	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
3	10	0	1	1	2	10	['num_1', 'nu	[3.89316415	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
4	90	0	2	2	18	60	['num_6', 'nu	[12.3783860	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
5	75	0	3	3	15	50	['num_5', 'nu	[19.7129590	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
6	15	0	4	4	3	10	['num_1', 'nu	[12.0124659	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
7	40	0	5	5	8	30	['num_3', 'nu	[5.14811801	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
8	55	0	6	6	11	40	['num_4', 'nu	[4.51276898	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
9	25	0	7	7	5	30	['num_3', 'nu	[6.01407217	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
10	95	0	8	8	19	50	['num_5', 'nu	[7.58639383	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
11	1	0	9	9	0	1	['num_1', 'nu	[17.5577208	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
12	60	0	10	10	12	50	['num_5', 'nu	[7.98617196	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
13	65	0	11	11	13	70	['num_7', 'nu	[9.62332296	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
14	30	0	12	12	6	50	['num_5', 'nu	[5.63128709	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
15	80	0	13	13	16	70	['num_7', 'nu	[4.89540290	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
16	100	0	14	14	20	80	['num_8', 'nu	[8.21915793	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
17	5	0	15	15	1	5	['num_enter	[0.01768994	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
18	45	0	16	16	9	70	['num_7', 'nu	[5.59809899	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
19	50	0	17	17	10	60	['num_6', 'nu	[30.6855490	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
20	85	0	18	18	17	70	['num_7', 'nu	[2.10714888	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
21	35	0	19	19	7	50	['num_5', 'nu	[6.01412606	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
22	20	0	20	20	4	20	['num_2', 'nu	[4.39581489	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
23	35	1	0	21	7	30	['num_3', 'nu	[5.94792890	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
24	45	1	1	22	9	40	['num_4', 'nu	[3.60859680	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
25	10	1	2	23	2	10	['num_1', 'nu	[8.48537492	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
26	20	1	3	24	4	20	['num_2', 'nu	[6.81670403	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
27	100	1	4	25	20	50	['num_5', 'nu	[6.24778604	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
28	15	1	5	26	3	15	['num_1', 'nu	[5.66431808	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
29	65	1	6	27	13	40	['num_4', 'nu	[8.08576393	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
30	50	1	7	28	10	50	['num_5', 'nu	[3.90928101	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
31	80	1	8	29	16	50	['num_5', 'nu	[11.8291959	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	
32	25	1	9	30	5	40	['num_4', 'nu	[5.76337695	2017_Nov_2	59.7813876	magest	1	jaf_1_100_5	

3. Open the .csv file from the experiment, save the file in .xlsx format.
4. Copy the highlighted columns to a new spreadsheet page.

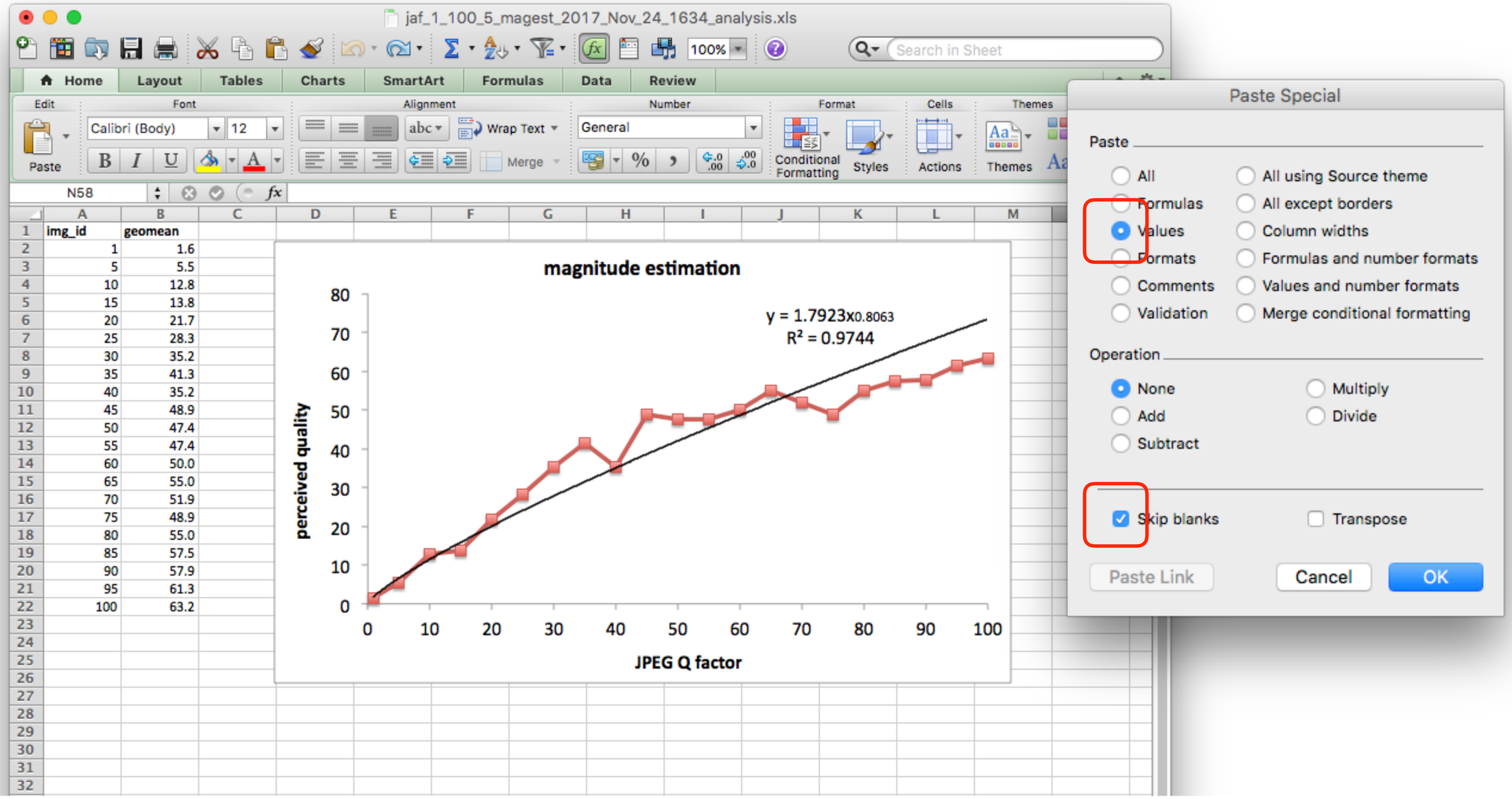
Lab 6 assignment: magnitude estimation analysis



	A	B	C
1	img_id	subResp	geomean
2	1	1	
3	1	1	
4	1	2	
5	1	5	
6	1	1	1.58489319
7	5	5	
8	5	1	
9	5	10	
10	5	10	
11	5	10	5.49280272
12	10	10	
13	10	10	
14	10	15	
15	10	15	
16	10	15	12.754245
17	15	10	
18	15	15	
19	15	15	
20	15	15	
21	15	15	13.8316187
22	20	20	
23	20	20	
24	20	40	
25	20	15	
26	20	20	21.6894354
27	25	30	
28	25	40	
29	25	30	
30	25	25	
31	25	20	28.252345
32	30	50	

5. Sort <u>all</u> the data, first by the “img_id” column then by the “subResp” column.
6. Create a new column called “geomean”. In this column use the GEOMEAN function to calculate the geometric means of the “subResp” for images with the same jpeg quality (“img_id”).
7. Select the column headers and <u>all</u> the rows that contain the “geomean" values. Copy these rows.

Lab 6 assignment: magnitude estimation analysis



	A	B
1	img_id	geomean
2	1	1.6
3	5	5.5
4	10	12.8
5	15	13.8
6	20	21.7
7	25	28.3
8	30	35.2
9	35	41.3
10	40	35.2
11	45	48.9
12	50	47.4
13	55	47.4
14	60	50.0
15	65	55.0
16	70	51.9
17	75	48.9
18	80	55.0
19	85	57.5
20	90	57.9
21	95	61.3
22	100	63.2

8. Paste these rows into a new spreadsheet page using the “Paste special” command with the “values” and “skip blanks” items checked as shown.

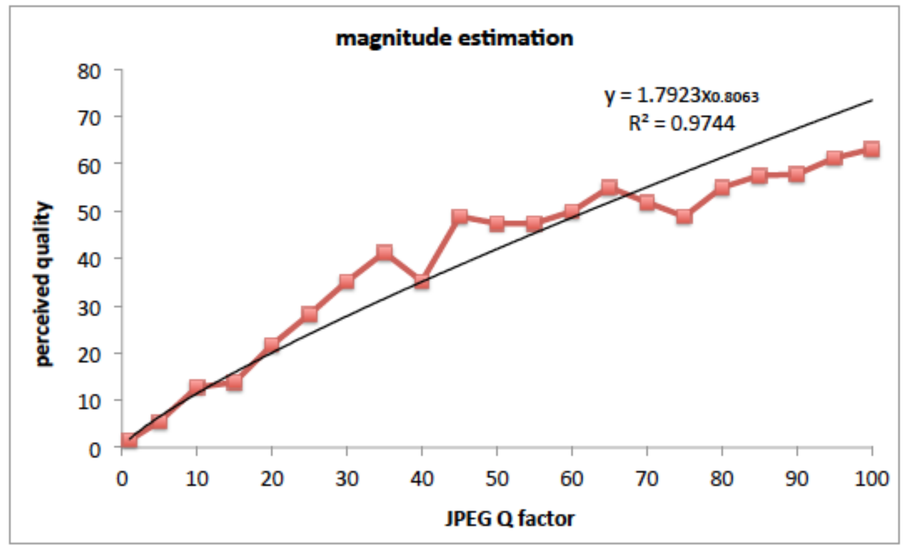
9. Delete the “subResp” column.

10. Create a scatterplot chart that plots the image JPEG Q factor (img_id) vs. the perceived quality (geomean) as estimated by the magnitude estimation procedure.

11. Use the “fit trendline” command to fit a power function to the data (include the equation and R^2 value on the chart.

Lab 6 assignment: results

img_id	geomean
1	1.6
5	5.5
10	12.8
15	13.8
20	21.7
25	28.3
30	35.2
35	41.3
40	35.2
45	48.9
50	47.4
55	47.4
60	50.0
65	55.0
70	51.9
75	48.9
80	55.0
85	57.5
90	57.9
95	61.3
100	63.2



12. Create a well-formatted 1 page PDF named **yourlastname_lab6_analysis.pdf** that documents the your analysis of experiment as shown above. Use the image above as a guide for layout and formatting. Your document does not have to be identical, but it should be mathematically correct, correctly labeled, and legible.

Lab 6 assignment: submission

13. Create a zip file named **yourlastname_lab6.zip** that contains the following

    13.1. The original .csv data files from your run of the experiment.

    13.2. The .xslx files that contain your analysis of the data from the experiment.

    13.3. The one-page PDF you created in step 22

14. Submit the zip file to the lab5 dropbox by the due date

If for some reason your analysis is not working out, contact me for help and advice on how to proceed. For this reason do not wait until the last minute to do this assignment.